



Country /City Italy, Ferrara
University / School University of Ferrara
Academic year 2021/2022
Title of the project Effetto Serra, Serre Salentine as a tool for post Xylella regeneration.
Authors Lorenzo Alessio; Irene Bolzan; Valerio Zuli

TECHNICAL DOSSIER

Title of the project	Effetto Serra, Serre Salentine as a tool for post Xylella regeneration.
Authors	Lorenzo Alessio; Irene Bolzan; Valerio Zuli
Title of the course	Landscape architecture and infrastructure
Academic year	2021/2022
Teaching Staff	Gianni Lobosco; Luca Emanuelli; Fabio Ippolito
Department / Section / Program of belonging	Department of Architecture, Sealine research center
University / School	University of Ferrara



Written statement, short description of the project in English, no more than 250 words

In less than a decade Salento, the extreme part of the Apulia region in Italy, has tested the transformation of its majestic olive trees into wooden skeletons of death. How to react to the presence of a bacterium that irreversibly disrupts the features of a landscape? The project responds to the desire to regenerate an area devastated by the Olive Quick Decline Syndrome (OQDS or CoDiRO) - caused by the bacterium Xylella - thus progressively compromised by the phytosanitary crisis and abandoned. The current state presents a fragile rural system in the process of desertification, aggravated by monoculture and drought, which requires a green infrastructure capable of activating new processes of agroforestry aimed to restoring the richness of the subsoil; The project's goal is to create a new, more resilient and sustainable landscape model that, through an increase of biodiversity in the area, is able to reactivate the countryside and better manage available resources. The strategy envisages the insertion of an ecological framework that branches off into the agricultural landscape, composed of native vegetation or crops resistant to Xylella, capable of fragmenting the monoculture and favouring the conveyance of the benefits of widespread biodiversity. The decisive factor is undoubtedly a more adequate water management, with which a constant water supply can be ensured for new reforestation and cultivation.

For further information

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12th International Biennial Landscape Barcelona

Barcelona November 2023

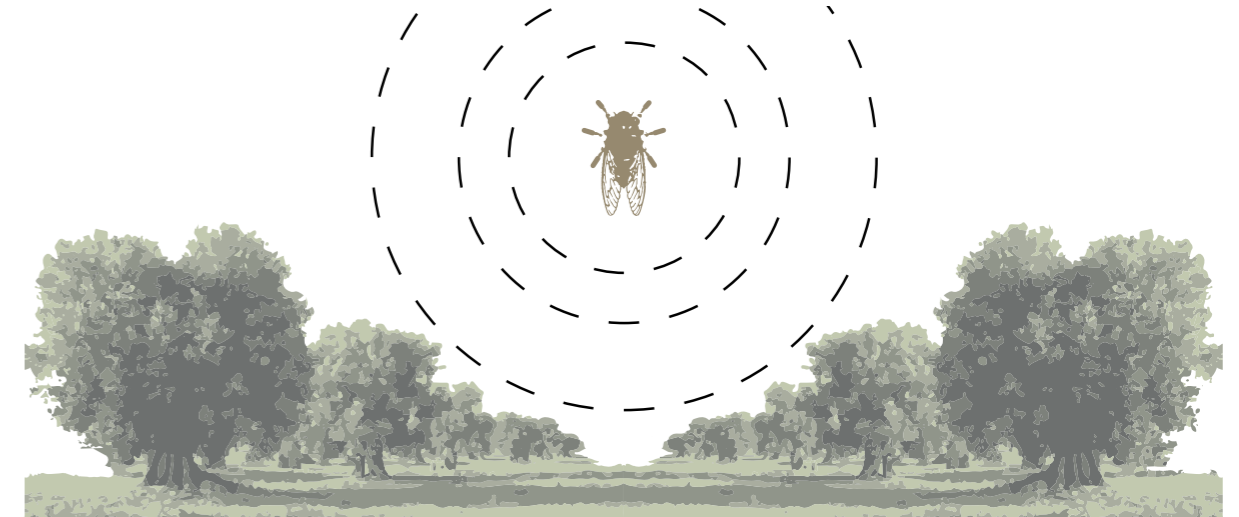
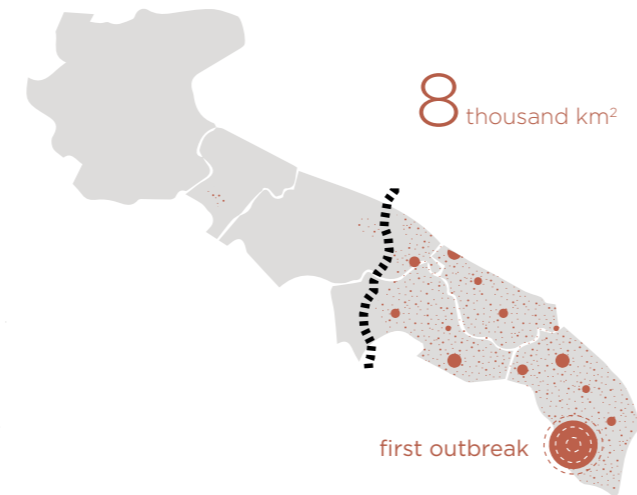
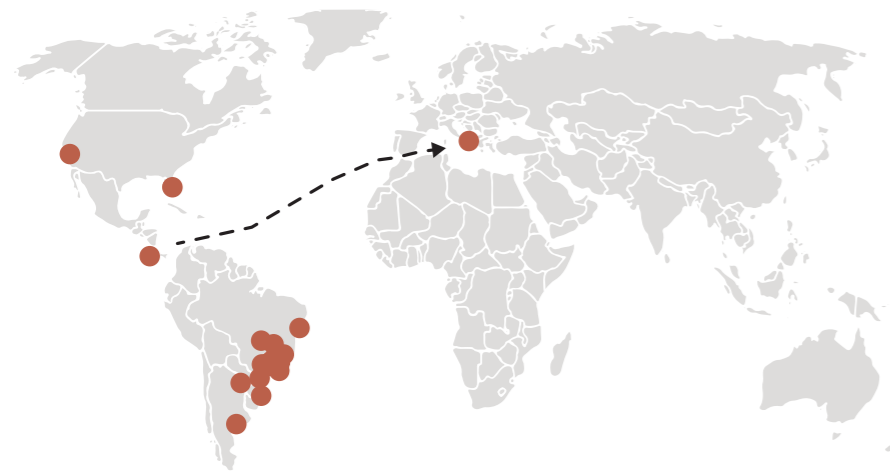
SCHOOL PRIZE

XYLELLA BACTERIUM AND ITS TERRITORIAL DISTRIBUTION

SPREAD OF XYLELLA BACTERIA IN THE WORLD
 arrival in Salento through a coffee plant from Costa Rica

INFECTED AREA
 Lecce, Brindisi, Taranto and Bari provinces

VECTOR INSECT
 Meadow froghopper (*Philaneus spumarius*)



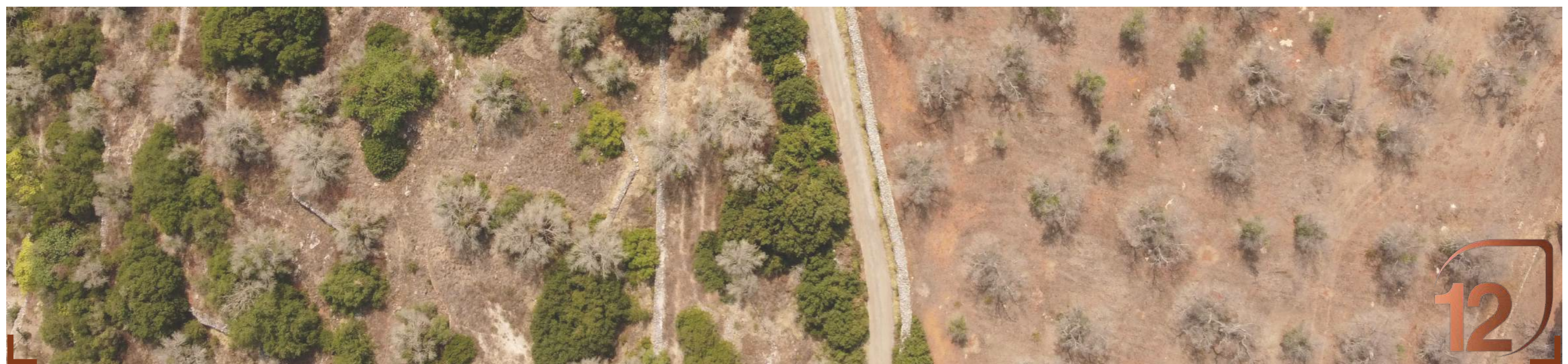
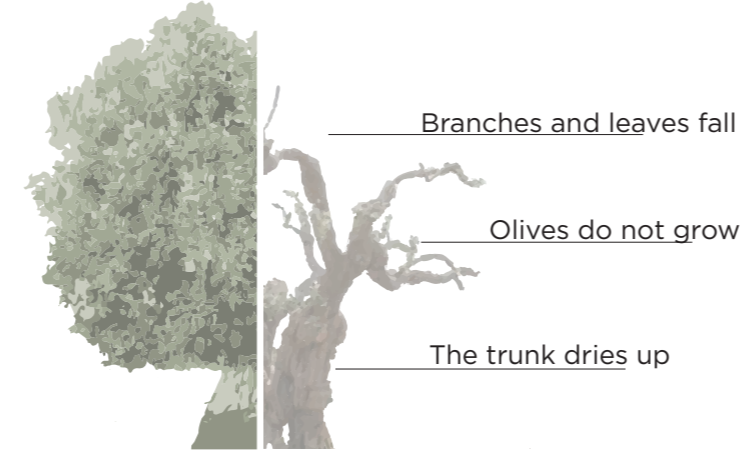
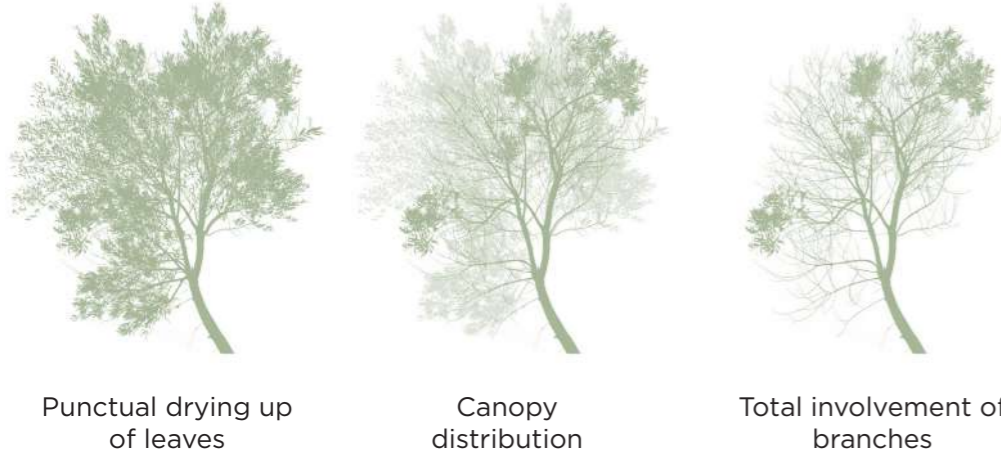
TERRITORIAL REACTION TO THE ARRIVAL OF THE XYLELLA FASTIDIOSA PAUCA BACTERIUM

DEVELOPMENT OF PHYTOPATHY
 contagion - spread - manifestation

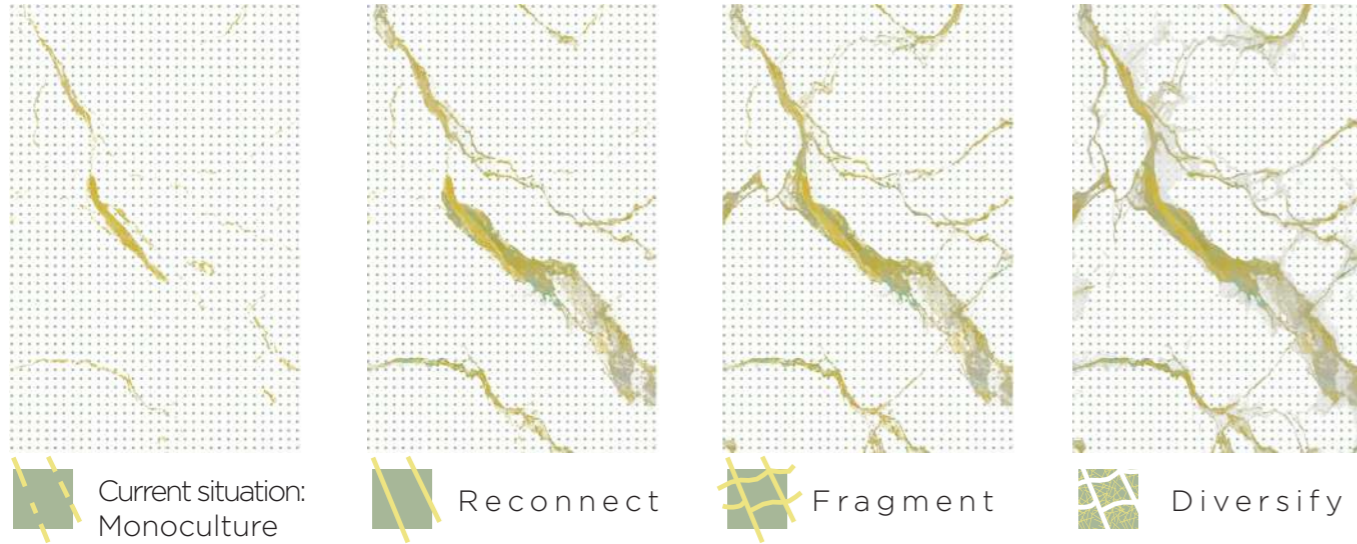
OQDS
 Olive Quick Decline Syndrome

CURRENT SITUATION
 infected landscape devastated by neglect

million trees affected **21**
 % Apulian territory involved **40**
 olive tree/inhabitant density abandoned in Salento **42**



TERRITORIAL STRATEGY - concept, actions and key elements



Current distribution of olive groves



Water management control, reuse, recovery and improvement



Current distribution of forests



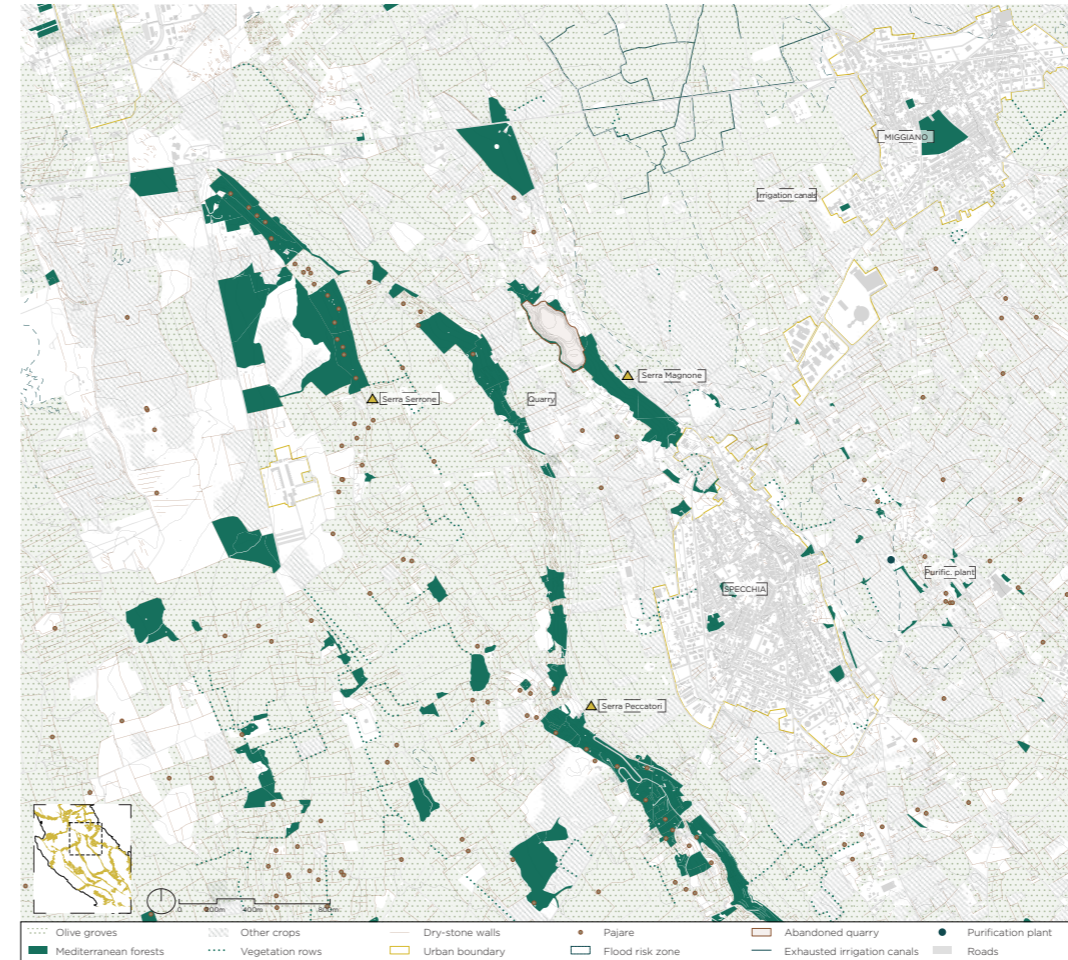
Vegetation management reforestation, conversion, reconnection and implementation



Orography of the Serra, territorial element of biodiversity which suggest the mesh's structure

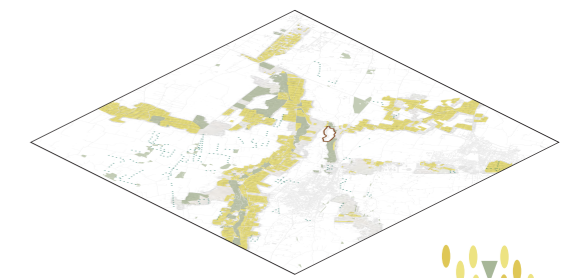


PILOT PROJECT - analysis, framework's design and achievements



REFORESTATION

+45,2% forest growth
69ha current forest area
57ha reforested area
12thousand new trees planted
10 types of tree species planted
16 types of shrub species planted



CONVERTED OLIVE TREES

354 ha converted olive groves
35.000 dried olive trees removed
PRESERVED NECROMASS
 Longitudinal component Transversal component
43 mc/ha **21 mc/ha**
5.200 olive trees **2.000** olive trees



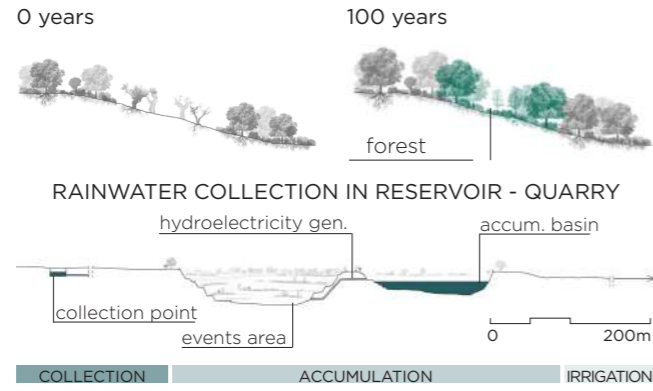
IRRIGATION

202 ha irrigated area
52 ha from reservoir-quarry
90 ha from purification plant
60 ha from canal system
178.000 mc reservoir-quarry capacity
7,5 km reactivated canals



LONGITUDINAL
framework's component

RECONNECTION OF INTERRUPTED FORESTS

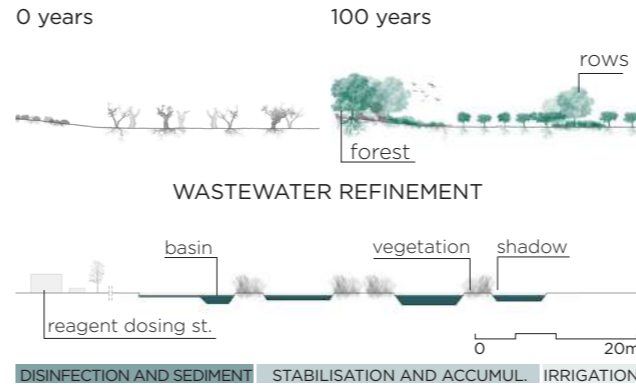


main route passing through the Serre, where the aim is to reconnect mediterranean forests and convert some olive groves following certain criteria based on habitat studies.

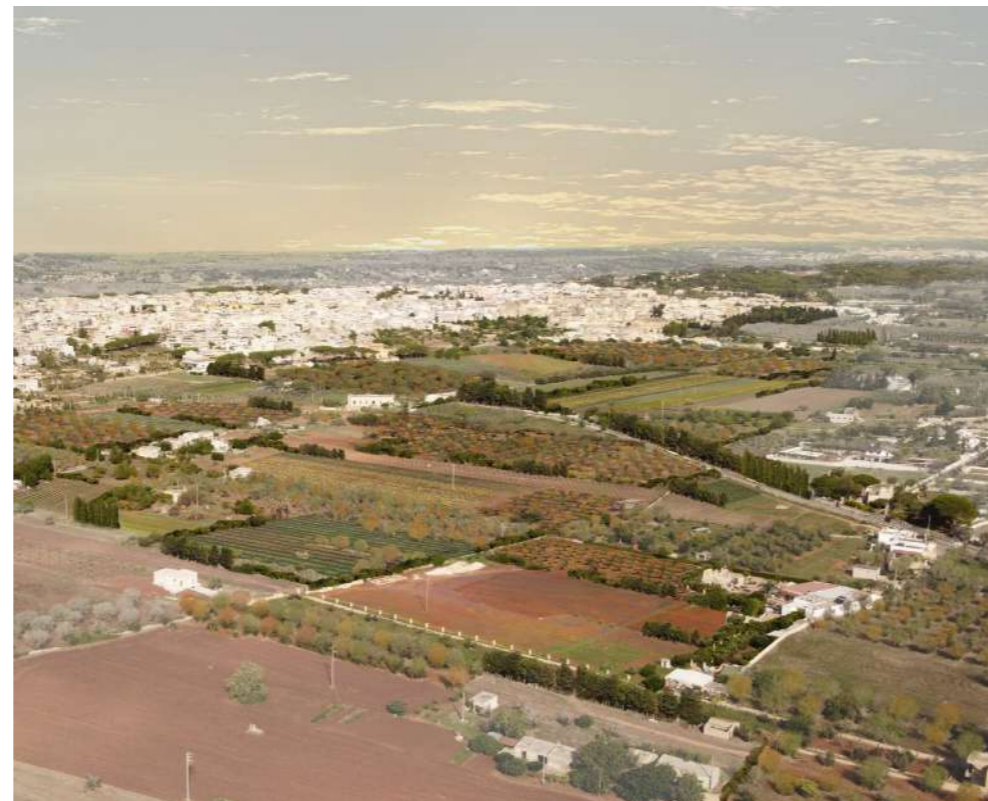


TRANSVERSAL
framework's component

PLANTING OF XYLELLA-RESISTANT CROP VARIETIES

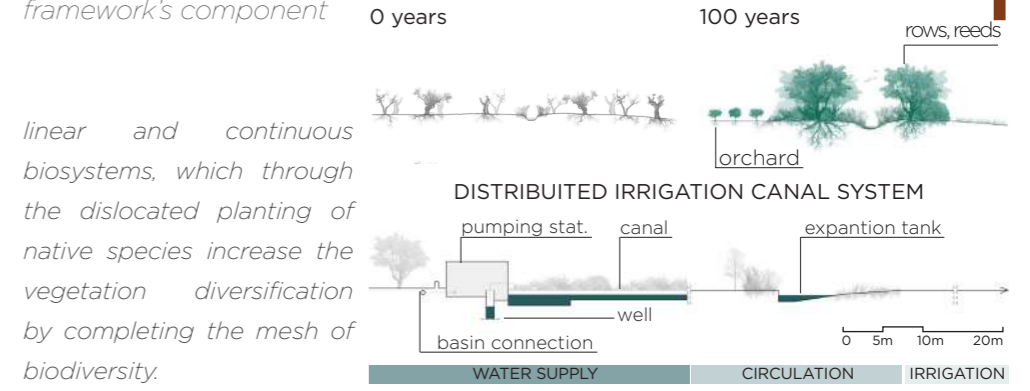


secondary tracks in which there is the planting of alternative crops to the olive tree, which have the task of sectoralising inland areas by breaking the monoculture pattern.



DISSEMINATED
framework's component

RESTORATION OF VEGETATION MARGINS



linear and continuous biosystems, which through the dislocated planting of native species increase the vegetation diversification by completing the mesh of biodiversity.

